

Asynchronous voice and body

\l primary stress ɛ̃ \ef\^ : voiceless @ 145-165 hz.

ɛ̃ \ef\^ -- PLOSIVE!

By

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Jason Zeh

Submitted to the graduate degree program in Visual Art and the Graduate Faculty of the University of Kansas in partial fulfillment of the requirements for the degree of Master of Arts.

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Date approved: May 13 2016



## **ABSTRACT**

A live, interactive, new media, sound performance, the piece addresses issues of identity, intimacy, and the technologically mediated body. In this work, the performer struggles to speak as computers and other communication technologies frustrate his desire to legibly convey meaning through speech. The result is an enigmatic and sometimes unpredictable blending of voice, body, and machine that raises questions about the social construction of identity and its status as an artificial and cybernetic social technology.

## ACKNOWLEDGEMENTS

This project would not have been possible without the generous and unending support of the following people. Please forgive any unintentional omissions.

Kelly Watson  
Lois Zeh  
Terry Zeh  
Kip Haaheim  
Benjamin Rosenthal  
Maria Velasco  
Blake Edwards  
Steven Prohira  
Sydney Campbell Maybrier Pursel  
Olivia Hernandez  
Carrie Beall  
Ruben Castillo  
Edward McKenna  
Leigh Kaulback  
Juan José Castaño Márquez  
Sarah Hennies  
Jesse Goin  
Frans de Waard  
Ben Gwilliam  
Stephen Cornford  
Terrence Hannum

Noé Cuéllar  
Joseph Kramer  
Tim Barnes  
Matthew Reis  
Jon Abbey  
Jason Lescalleet  
Joe Panzner  
Mike Shiflet  
Anthony Saunders  
Eames Armstrong  
Luke Jordan  
Mary Anne Jordan  
Matt Burke  
Norman Akers  
Dan Lowe  
Joel Midden  
Eli Gold  
Ryan Unks  
Bob Newsted  
Piper Harrow

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## **History (my work in perspective):**

In my work, I have always grappled with an ambivalence toward meaning. I am always looking for the scraps at the edge of meaning: the noise and errors that are in the margins of any message. This is a key concern that continues to influence the way I created this current work. When reading scanned or printed .pdf documents for class, I am regularly distracted by the visual noise in the margins: remnants of the layers and layers of copy machines and scanners that this particular document has passed through on its way to me. In these blemishes on the edges, one can find a wordless history that resists desires to decode it. Similarly, when reading library books or used books that I have purchased, I am preoccupied with the doodles and indecipherable scrawls in the margins. These marks that exist in excess of the intended content of the book act similarly as wordless records of countless pairs of hands and eyes that have passed over the pages in years passed. They point to past struggles to find and make meaning. They allude to long ago completed research projects. These palimpsests situate the document as a single node in a social web oriented toward knowing. But the meaning of this social web lies not in the content of the document's words, but in the wordless knowledge that others have passed this way before and have left their mark to lead the way through. When I looked away from its intended meaning, I was able to feel the remnants of an encounter with strangers.

These examples represent moments in my life when the intended meaning or use of an object could have distracted me from seeing the scraps at the edge where something secret was hiding, waiting wordlessly to be found. All of these encounters represent a reversal of utility value in an attempt to find some sort of socially relevant meaning where others would ignore it. I think that the root of this urge to undermine the utility value of objects and modes of

communication comes from a recurrent experience I had as a child: one that continues to be a central dimension of my artistic practice.

Family dinners were an important feature of my childhood and we would often have broccoli. My Mom would always serve the stems to herself and the tender florets to the rest of us. Even as a child, I read this gesture as a profoundly significant act of self-sacrifice: one that powerfully indicated the love my Mother felt for me. I have replayed this common scene in my memory for years and, in hindsight, it is more than an act of self-sacrifice. It is a profound reversal of the utility value of food. All of the meaning and significance of a piece of broccoli is found in the nutrient-rich florets. Even the flavor of this vegetable, the sensory pleasure found in eating it, is located in the florets. Broccoli stems are scraps that are cast aside in favor of valuable and useful florets. These scraps were my Mother's dinner.

In her focused attention to the stems, my Mom imbued these scraps with a wordless significance. They took on the role of a powerful symbol of our social bond. They became the material embodiment of the love she felt for me. As she ate these scraps, she was eating, not nutrients, but the physical manifestation of that love. She never had to articulate that meaning overtly or in words. The value of that gesture was found in the inversion of utility value. The meaning was found in the very act of refusal to focus on the part of the food where its value was supposed to be found. This powerful and common occurrence in my childhood has filled me with a longstanding need to search for meaning in the scraps at the edge of meaning and to find value in the things that have been discarded or that can be easily ignored. This project, uses creative coding in the Max programming environment, repurposed software designed for phonics research, and consumer electronics to focus not on the meaning of the words in verbal acts of communication, but to reveal the scraps at the edge of that meaning. The goal is to focus on the

meaning in the technological and social encounter that produces the conditions necessary for intelligible speech.<sup>1</sup>

### **The Development of an Idea:**

This live, new media, sound performance, addresses issues of identity, intimacy, and the technologically mediated body. In this work, the performer struggles to speak within the confines of a rigorously defined social system as computers and other communication technologies frustrate his desire to legibly convey linguistic content through speech.

The idea for this piece began several years ago when I heard a segment on Kansas City Public Radio's "Central Standard" radio program. In this particular episode, the host was conducting a roundtable discussion with a number of members of the Kansas City transgender community and one of the contributors to the conversation was a local speech therapist named Caroline Gibbs from the Transgender Institute. Gibbs revealed that she works primarily with M to F transgender clients who wish to learn to speak in a way that more clearly conveys their gender identity to those with whom they speak. In order for her clients to practice adopting vocal traits that people commonly associate with femininity, she has them perform a number of vocal exercises. The most interesting one for me asks clients to say "I need more waffles for my dump truck." This seemingly nonsensical phrase is carefully designed to train clients to adopt a more melodic, rhythmic, or "sing-songy" mode of speaking.

I was immediately struck by the implications of an exercise like this one. It is devoid of linguistic content; the words in the sentence are largely meaningless. However, this does not mean that the statement is devoid of meaning. The meaning in the phrase is just not found in the words themselves. The meaning is found in the extra-linguistic components of this speech act. It is found in the tone of voice: in the *way* the words are said and in the social context that shapes

the way that speech is understood. For the next few years, I found myself obsessed with this notion that speech conveys content in multiple ways simultaneously. Words convey meaning, but there are myriad other components of the voice that convey significant meaning about the speaker's identity beyond the words spoken. In fact, it started to become clear that when we locate the meaning of a speech act in the words, it becomes easy to ignore or underestimate the meaning that can be found in the non-language components of speech. By removing meaning from the words in this phrase, Gibbs has provided an opportunity to focus on the meaning that is constantly below the surface of every utterance: shaping the intelligibility of the speaker's identity. In terms of the story from above, casting aside the broccoli florets allows us to find hidden meaning in the stems.

### **My Goals:**

My primary goal with this work was to create a social encounter between my listeners and myself. I wanted to turn an attempted act of communication into a node in this social web that reveals the ways in which social rules determine how we communicate with others and how others make sense of that act of communication. I wanted to create a system in which rigorously defined social rules determined how I spoke and what I said in order to reveal the way that social encounters are complex negotiations in which individuals make sense of one another's identities.

### **The Performance Space and the Social Encounter that Fills it:**

The piece finds the viewer and a single performer in a gender-neutral, gray, uniform thrown into an unfamiliar, and rigorously defined social logic that disorients them while inspiring curiosity to learn what precisely is going on. On the west side of the space is a chart composed of white gaffer's tape and applied to the black floor. This white grid with laser-cut, wooden symbols, also in white, has been adapted from a phonics chart and repurposed as a

device for collecting data from the audience. Against the far western wall is a chair with a silver stopwatch and a custom printed notebook featuring blanks for taking note of the data that is collected during the performance. Across the chart and directly in front of the chair is a tall, slender, pedestal with a tall stack of note cards featuring instructions on how to speak. These instructions have been adapted from diacritic symbols. In this section of the performance space, I mark viewers' feet with red and green gaffer's tape and use the stopwatch to time how long the marked foot stays planted in place on the floor. I then take note of that time measurement, perform a calculation, and use the result to determine how far into the stack of instruction cards I must go to select a card. This phase of the performance, taking place in the west side of the gallery, results in a single instruction on how to speak.

On the east side of the gallery space, there are two additional performance spaces, two chairs, and two charts made out of the same, white, gaffer's tape on the same black floor. The side to the south has a very similar, grid-like, phonics chart on the floor with very similar white wooden symbols. The chair in this space has a chalk line tool attached to it, a bucket of water and towel next to it, and a tape measurer on top of it. When a visitor enters this space, I mark their foot position using the same red or green gaffer's tape on the floor. I then extend the chalk line tool to the tape mark, snap the string, and make a white chalk line that radiates from the center of the chair, through the chart, and terminates at the tape mark. I then use the tape measurer to take three measurements marked by intersections of the chalk line and the grid lines of the phonics chart. I wash my hands in the water bucket, dry them with the towel, and perform calculations to produce three values that will be noted on the same notebook in which I performed calculations during the first phase of the performance. The actions in this section of



the performance space yield three values that are entered into a computer to adjust three parameters of my voice: pitch tier, formant shift ratio, and new pitch median.

At this point, I walk to a desk located in the center of the space and facing the entrance to the gallery. This desk is covered with equipment including mixers sending sound to four pa speakers located in each corner of the gallery. There is a laptop computer, a microphone, an external monitor, and an Xbox Kinect attached to a tripod. The Xbox Kinect uses motion and depth data from the audience to combine fragments of text that are displayed on the external monitor. When I sit at the desk, I enter the three parameters that will change the sound of my voice, I consult the note card that tells me how to deliver my speech, and I read the passage from the external monitor into the microphone. This voice recording is then processed and played back into the space and several different versions of the recording (a raw recording and one for each of the three stages of transformation) are saved to an archive. This growing archive of voice recordings is then accessed by the Xbox Kinect that again uses motion and depth data from the audience to select an audio file and to play it back in one of the four speakers in the gallery. In this context, the vocal utterance becomes a collaborative creation. The data generated by the audience tells me how to speak. More data generated by the audience tells the computer how to transform that speech. No one individual has control of the outcome of the speech act. Finally, the voice is severed from the body, commingling with the procedural logic of the machine, and entering into the air permeating the social encounter that occurs there.

The final phase of the performance takes place in the northern section of the east side of the gallery. This space has a chart on the floor modeled after a “vowel editor” in a piece of software called Praat. There is also a chair against the wall in this section of the space and the chair has a pencil and a custom made notebook featuring the same vowel editor that exists on the

floor. As a viewer walks through this chart, I map their movement onto the corresponding notebook. Their path moves around and through white, laser cut, wooden, vowels on the floor. After the viewer exits the chart, I take the map to the computer and use the track pad on the laptop to transcribe the path into a corresponding vowel editor in the software. The result is a synthesized drone that mimics the vowel sounds that the path crossed. The software then extracts a pitch tier, or the melodic qualities of the previous vocal recording and the filter or mouth shapes used to produce that recording and combines all three into a single sound file that is played back and added to the same archive of sound files for future playback. This sound becomes something ranging from a mechanical, robot, sounding voice to an abstract drone. Again, machine and voice intertwine as the utterance leaves the body.

Throughout the entirety of the performance, this cycle of data collection and speech repeats as the audience moves through the space for roughly four hours a day. Over time, I began to notice a bizarre form of intimacy developing between the people who entered the gallery and me. I had made a decision to refrain from engaging in eye contact with viewers and to refuse to interact with them in a way that I might in daily life. I began to notice that, even though I was quite attentive to their presence, indeed I had to pay close attention in order to accurately collect the data from them, there was a strange barrier between us. I could not speak to them, look them in the eyes, or otherwise greet them. The result is that we were only able to relate to one another through the system of rules and data collection. The social system I had created was the medium through which we established a connection, albeit a distant and alienated one.

I could take note of viewers who were devoted to trying to work out the logic of the system. They would engage in bodily experiments in order to determine how I was interpreting their movements. The most interesting of these kinds of interactions took place in the west side

of the gallery where I was measuring the time that a viewer's marked foot remained on the floor. Some viewers would stand still for as long as possible testing what kinds of movements might cause me to stop the timer. Some would lift their unmarked foot, bend the leg attached to the marked foot, or lift a heel only to find that the stopwatch would keep measuring time until the marked foot lifted entirely from the floor. In these moments there was an unusual, but palpable sense of intimacy like the way a staring contest makes the air between contestants feel charged with weighty significance. It was an intimacy mediated by an impenetrable system of social rules.

After day two, I began to experiment with making eye contact when speaking. I imagined that, given the lack of eye contact throughout the rest of the piece, the sudden connection experienced while speaking might produce a potentially intense moment of intimacy. It ended up creating a dynamic whereby social rules dictated what and how to speak, while the act of speaking made that connection materialize through a look. This fleeting connection then disappeared as I retreated back into the act of collecting data. In this interplay between social interaction and isolation, the piece meditates on bodily and emotional intimacy and identity: resulting in an enigmatic and sometimes unpredictable blending of voice, body, and machine that raises questions about the social construction of identity through communication and grammatically determined rules that govern the intelligibility. The piece began as an inquiry into the status of gender identity as an artificial and cybernetic social technology, but through the research and execution of the work, it has developed a more expansive focus. The work evolved into an experience that speaks to a wider range of socially determined identity positionings.

As I was de-installing the piece, I had an interesting encounter with a member of KU's grounds crew. He was in the gallery assessing a technical problem with the facilities and asked

about my piece. Searching for a quick and easily relatable way of explaining some of the concerns of the work, I asked if he had ever had an experience in which he felt that he had opened his mouth to speak only to get the sense that the listener was immediately making assumptions about his identity based on certain features of his mode of communication. Of course he responded in the affirmative without hesitation. Most people who are immersed in virtually any social context are familiar with the feeling that there are elements of our speech that communicate something about who or what we are: oftentimes separate from the actual words spoken.

### **Why Sound:**

I am struck by a question. If the importance of this work revolves around the ways in which regularly unexamined rules determine the intelligibility of our identities, then why is the voice an ideal social phenomenon through which to observe this dynamic? There are visual indicators of identity that are similarly embedded in socially constructed systems of meaning. Clothing choices, hair styles, dental health, body type and likely endless other visual indicators of social positioning might serve as ideal sites for intervention in similar social processes of meaning making. Here, we might just as easily condense the question into one about the place of sound in a culture dominated by the visual.

The sonic is an ideal means by which to address the challenges of making meaning in a social context. If the goal of this work is to uncover hidden significance in the scraps at the edge of meaning, then sound is an ideal place to start looking because sound itself has a conflicted relationship to meaning. Over the last few decades, as sound has been increasingly integrated into an art world previously dominated by the visual, a crisis of aural literacy has emerged resulting in the drawing of perhaps exaggerated battle lines between conceptual and

phenomenological approaches to creating and engaging with sound works.<sup>2</sup> Some argue that much sound art relies too heavily on form and sensation to the detriment of sound's capacity to convey conceptual meaning.<sup>3</sup>

My work confounds tendencies to create a tidy binary between these two extremes: the conceptual on one side and the phenomenological on the other. It proposes a model of the sonic that points to rationality, logos, and the role of language in structuring the fundamental chaos of daily life. However, it provides just enough information for the viewer to feel the pull to search for meaning while denying them the kind of concrete specificity necessary to make sense of the words that are being spoken. The piece mobilizes meaning strategically in order to induce listeners to look at the social process by which meaning is made. A chart or grid has a long history in contemporary art of pointing to rationality. The collection of data and taking of measurements carries the implication of logic. Both of these features of the performance offer the promise of meaning without delivering specific content. It is when the sound of the voice is played back into the space that all of the content can be digested. Listeners can hear that the voice has been made higher or lower in pitch, that it has been made more or less melodic, that it has been transformed by the rules of the social encounter. Listeners can hear the artificial or robotic quality in the voice severed from the human body. The sound in this work is where one can hear the influence of social interactions on how we speak. It has significance even if meaning is difficult to locate. The act of hearing in this piece is essential for reflecting on the way social situations shape the intelligibility of our speech..

This performance points to the messy and complex relationship between body and mind, sensation and intellection, feeling and thought. There is an uneasy severing of voice and body that is enacted in each vocal utterance. As I speak, the voice issues forth from my throat. But it is

not complete until it has passed through the virtual vocal tract of the software that I have written. A computer is a machine that is governed by unbreakable, procedural, rules. It is the epitome of rational logic. The logic of the software separates voice from body to the point that it no longer refers to the bodily features from which it originated. It is given a new sound and a new meaning. The voice resounds, separated from the sensing body and circulating within a new logic. In the separation from the body, the voice takes on new meaning. The sounds in the piece, that immaterial and ephemeral component that so many thinkers have associated with the phenomenological or the pre-linguistic is where meaning starts to solidify.

### **On the Voice:**

Creating a sound work that revolves around speech seems to be an obvious way of getting at the conceptual quality of sound. After all, what is a speech act if not a sound-based means of conveying content to a listener? However, the issue is more complex than that.<sup>4</sup> Caroline Gibbs' vocal exercise from above relies on a separation of voice from linguistic content. The words "I need more waffles for my dump truck" are devoid of meaning. However, that lack of linguistic content allows us to locate a new kind of meaning in the sonic material of the voice itself.

Here, sound itself is revealed to be rich in meaning. The voice is a personal sound that takes on meaning when encountered by individuals with the aural literacy to read significance into the sensations that seep into the ears. Far from being mere sensation, the sound of the voice becomes a powerful conveyer of conceptual content to strangers who know how to interpret an accent, a frequency range, or a pitch tier. It is also rich with meaning for close relations for whom other aspects of the voice's individuality point to the identity of a specific person.

The text components of this sound work address my research into the role of the voice in the projection of identity into the social world. My research on gender and the voice has yielded interesting information on the non-language components of speech that convey gender. Fundamental frequency, or the primary pitch that we hear in a speaker's voice, is a key indicator of a speaker's gender. In general, the range we commonly associate with a "male" voice is 80-165 hz and 145-275hz is the frequency range we associate with a female voice (Azul "My Vibrant" 8). You will notice a clear overlap in the upper register we associate with a masculine voice and the lower register of the feminine voice range. When perceiving the pitch of a speaker's voice and interpreting that pitch as a gendered cue, formant frequencies are also important. The formants of a vocal utterance are the timbral qualities of that sound. These frequencies are shaped by the length of the vocal track and the resonances of the bones in the chest and face of the speaker. We also tend to attribute masculinity and femininity to these frequency characteristics (Cartei and Reby 80). A final issue of importance in using frequency of pitch in determining the gender of a speaker has to do with melodic qualities of the voice. Gibbs' vocal exercise is based on training speakers to fluctuate the pitch of their speech in order to convey gender through melody. Ruark, another researcher, identifies a tendency among men to "intone downward" in contrast to a more feminine tendency toward an "initial rise" (3).

### **Manipulation of the Voice:**

This piece uses a few different techniques to manipulate both fundamental and formant frequencies as well as melodic pitch in two ways. The first is the way I deliver a vocal utterance in performance. According to instructions on cards, I may speak in a higher or lower register. I may also choose to spread or stick out my lips in order to simulate an elongated or changed vocal

tract. This is a technique that young children often use when asked to speak like a boy (Cartei et al. 100-101).

The other way that I controlled and manipulated these parameters is through the use of scripts that I have written for a software called Praat. Many of the articles that I have read that engage in phonics or speech pathology research use this software for visualizing voice recordings, creating charts and graphs of data, and simulating a variety of speech characteristics for experiments. I have repurposed this program by writing scripts that transform the fundamental and formant frequency of my voice and also replace the melody of the speech with a more or less melodic pitch tier from another vocal recording.

In addition to frequency and pitch, there are other, often unnoticed, features that can have a similar effect. These include aspects of speech like volume, speed, melodiousness, pauses, rhythm, and resonance. “Articulation, resonance, vocabulary, and nonverbal behavior,” can also have an effect on the perceived gender of a speaker (Azul “Transmasculine People’s” 33). Another feature is breathiness, cadence, and sort of a smooth blending of syllables into one another (Ruark 2-3). All of these features of my voice were modified in the way I delivered my lines according to instructions on the cards. It was often quite surprising to hear the way that my voice was transformed through a mixture of my performed speech and the transformation initiated by the software.

### **Generating the Text:**

As I began to think through possible phrases that I might include in the text shuffling program that I wrote, I returned to Gibbs’ phrase, “I need more waffles for my dump truck” as inspiration. As I analyzed the way that phrase was constructed, I started to notice a number of gendered contradictions in the word choices and phrasing. “I need more” has an assertive tone often associated with masculinity. I thought back to the gender dynamics that I witnessed in my own family. In the case of the relationship between my Mother and Father, my Mom has always



been the one who sacrifices her own desires for those of her family: a practice I have started referring to as “broccoli stemming.” She rarely articulates her needs and, as a result those needs often go unfulfilled.

In selecting and composing phrases to be included in the text shuffling program, I sought to use the semantic absurdity and complex power dynamics of this phrase as a model. I also tried to take into consideration the rhythmic and melodic qualities of it as I searched through memories of my own family life for personally relevant phrases that could be cut up and recombined into unexpected new vocal exercises to exclaim in moments of vulnerability in front of an audience. Additionally, I intentionally tried to word phrases using the passive voice and to pick words that relied heavily on “s” sounds in accordance with research conducted by the university of Colorado Boulder that found that men and women learn to pronounce their “s” sounds differently (Abrams). Like other aspects of my works, this text deals with the scraps at the edge of meaning: the residual character of a particular mode of communication that exists in excess of the content that is communicated.

### **The Relational Encounter:**

It is important to note that this conceptual quality of the sonic features of the voice only takes on meaning in an encounter. In order for the content of a voice to be identified and interpreted, there needs to be a speaker who encounters a listener within the context of a social system saturated with rules that govern the interpretation of that sound. Interpretation of the voice is innately relational.<sup>5</sup>

In creating the parameters of this social encounter, it was very important that the audience have a sense that they have been dropped into a social situation governed by rules that they don’t understand. When we are born, we are thrown into a pre-existing system of rules and social cues that govern the intelligibility of our identities and that limit the possibilities for different identities that we can inhabit. As infants, those rules are unclear, nonsensical, and represent a system of meaning-making that is entirely opaque to us. Of course, most of us gradually become habituated to that system of rules. We begin to gain the cultural knowledge necessary to read these cues easily and often unconsciously. The rules become so familiar that

they become invisible: operating silently but powerfully in the background of all social encounters. It is necessary for viewers of this piece to be nudged out of that comfortable sphere of orderly rules for making sense of identities. It is essential that the work present a seemingly chaotic, nonsensical, and frustratingly complex system of rules to remind them of the fundamentally arbitrary system of rules governing the way we communicate. The work proposes an alternate system for making sense of identity cues in an attempt to make the rules that we take for granted seem foreign, strange, and arbitrary. Our own performed identities are often easy to ignore. In this way, the work and the rules that structure it, define the encounter between performer, audience, and situation. The relational quality of this work is a reimagining of the relational quality of real world social encounters.

The relational intimacy created by the piece was a really powerful feature of the experience for me. When I spoke into the eyes of a stranger, I felt an intense sense of vulnerability. The act of overcoming my hesitance to speak to the stranger forged some momentary social bond between us. When I spoke into the eyes of a friend, I felt a powerful connection to that person. For the rest of the week, as that phrase resurfaced and played into the space, I began to think of that recording as the ghost of that person floating around me. Somehow, we had overcome the alienation imposed on us by the rules of the social encounter and their essence stayed with me.

### **The Technology:**

For me, this systematic and rule-focused character of the encounter is clearly analogous to the construction of a technology designed to make social meaning: a communication technology through which all attempts to speak and hear are mediated. This project is the beginning of a theoretical approach to the social encounter that I would tentatively like to refer to

as “relational cybernetics.” This term riffs off of Nicolas Bourriaud’s “relational aesthetics” and imbues the term with renewed contemporary relevance by adding to it a technological metaphor that reveals the complex, adaptive, systemic, and manmade character that marks contemporary, social encounters.<sup>6</sup>

Through the use of communication technologies and software development, I have created a work that relies on digital media for communication. The software I have developed is necessary for me to speak to the other individuals present in the space. In this way, the computer is not a mere extension of the body, it is responsible for fundamentally shaping the content of my speech. Most importantly, though, it is essential for me to acknowledge that I have not built an instrument in the software. Instead, I have built a barrier to communication. An instrument facilitates expression or communication. What I have made frustrates expression or communication. Instruments may be very complicated, but the goal is often to learn how they work properly in order to put that knowledge to use in service of producing a sonic outcome. The software I have made is explicitly designed to get in the way. They are designed to be unwieldy for me and impenetrable for others.

In so doing, I am continuing my longstanding critical stance toward technology. I am acknowledging the ways in which technology and the procedural logic of computation shapes our notion of the human and of human relations. I am presenting the technological as an essential feature of contemporary acts of communication. However, I am also pointing to the breakdowns in communication that occur precisely because of the technologies that have been specifically designed to make communication more effective. I am finding meaning in the noise that frustrates intelligible communication. I am pointing to the rules that govern social interactions in

general and spoken communication in particular. Finally, I am looking for meaning in the non-language components of speech: the scraps at the edge of meaning.

### **Conclusion:**

Scraps and detritus in communication carry a wide range of political and social resonances. The unexamined features of any attempt to communicate necessarily shape the content that one can convey. When we ignore the broccoli stems in favor of the florets, we blind ourselves to the ideological functions of the technologies and social rules that mediate all attempts at communication.<sup>7</sup> It forces us to ruminate on the often arbitrary though rigorous systems of social rules that govern the ways that we express, communicate, and read our own identities and the identities of others.

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### **Notes**

<sup>1</sup> A key organizing principle of my research agenda has been the theory of signal and noise advanced by engineer and communication theorist, Claude Shannon. In his attempt to boost the efficiency of communication technologies, he borrowed the concept of signal and noise from information theory. Of Shannon's work on this topic, Charlie Gere states, "'Noise' is Shannon's term for the elements of a signal that are extraneous to the message transmitted" (Gere 96-97). Here, signal constitutes the content of some message mediated through a communication technology and noise is everything that has the potential to get in the way of a clear reading of the intended content. Some key issues associated with this concept of signal and noise include the fact that technology mediates communication, technology leaves an imprint on any message, and technology develops toward ever increasing transparency. That is, acts of communication

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always tend toward minimizing noise and maximizing signal, making the mechanisms facilitating communication invisible or hidden.

<sup>2</sup> This debate has come to a head around the writing of critical theorist Seth Kim-Cohen and his concept of “non-cochlear” sound art. Kim-Cohen’s intellectual project revolves around revealing what he believes to be pervasive and troubling historical trends in sound art that rely too heavily on form and sensation to the detriment of sound’s capacity to convey conceptual meaning.

<sup>3</sup> Of key importance to the phenomenological view of sound is the belief that sound is a fundamentally immersive, sensory, experience and, as such, it is somewhat precognitive or pre-linguistic. Artist and theorist Salomé Voegelin devotes significant space in her 2011 book, *Listening to Noise and Silence: Towards a Philosophy of Sound Art*, to discussion of this immersive character of sound in opposition to a more detached and rational character of vision. She draws on Maurice Merleau-Ponty’s notion of “being-honeyed” (9). In discussing the immersive character of sound, she recounts a story about a particular encounter with a broadcast in which Merleau-Ponty describes the sensation of honey on his fingers (9). Voegelin asserts that the sticky and flowing quality of honey can only be fully grasped by a bodily and sensory encounter with it not through distant, visual observation (9). She claims that there is a “phenomenological intersubjectivity” found in “being-honeyed” in that the character of honey can only be perceived in the stickiness of Merleau-Ponty’s fingers that come into contact with it (9). She sees clear parallels between this notion of “being-honeyed” and the experience of sound. Unlike the experience of looking at visual art: an experience that creates separation between the perceiving subject and the object that is observed, sound comes from all sides, immersing the subject in invisible sensation like honey on the fingers. Therefore, she claims that “sound’s ephemeral invisibility obstructs critical engagement, while the apparent stability of the image invites criticism” (xi-xii). For Voegelin, an image can be observed and considered from a neutral, external location, while sound implicates the body of the listener in the sensory experience. It is important to note that Voegelin seems to believe, that the immersive, sensory character of sound forecloses the opportunity for the kind of rational reflection that one can achieve when looking at an image from afar. In so doing, she reinforces a longstanding connection between vision and logos while relegating the listening experience to one that is marked primarily by feeling.

In some ways, musician and scholar Drew Daniel seems similarly committed to the phenomenological view of sound to which Kim-Cohen is reacting. In his article “All Sound is Queer,” from a 2011 issue of *The WIRE*, Daniel recounts a striking anecdote about being woken from sleep by the sound of a number of crows outside his bedroom window. In this passage he describes a feeling of being one with that animal sound. As he awakens, engulfed by an immersive sonic present, he is not yet aware of what he is hearing and is not yet able to consciously differentiate himself or his own mind from the sensation of sound in that space (11-12). Here, he seems to echo Voegelin’s intersubjectivity in sound as Daniel finds himself indistinguishable from the phenomenological sensation of sound. He then recounts his experience of “a sorrowful descent into language” as his wits return to him and he is able to name the sensation as the sound of a crow (12). He goes on to long for a return to that pre-linguistic stage of hearing that is distinct from any notion of its origin and remains open to

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unfettered possibility (12). In this passage, Daniel seems to prioritize an experience of the sonic as pure sensation and longs to separate sound from its logos or meaning-making potential.

Seth Kim-Cohen locates the origin of this phenomenological or prelinguistic view of sound in a surprising synthesis of John Cage's ideas about close listening to "sound-in-itself" and Clement Greenberg's medium-specific, essentialist modernism. While Greenberg was advocating that each visual art medium purge itself of all features that are not essential to it, Cage and proponents of *Musique Concret* were advocating a similar approach to the sonic by asserting that listeners should try to reach a transcendent state in which one could appreciate the sounds separate from their connection to an identifiable source (xv-xvii). In so doing, Seth Kim-Cohen relegates this view of sound within the art world firmly to the past pointing to the conceptual turn as an essential framing device for thinking through the real concerns of the sonic arts. To make his case, he adapts Marcel Duchamp's call for a "non-retinal" art that focuses more on ideas rather than personal taste that can be fully apprehended through senses. In this book he proposes a "non-cochlear" approach to sound (xxii).

It would be easy to hear the "non" in Kim-Cohen's "non-cochlear" formation as a simple negation of sensory experience: a rejection of the ear and of sound as a dynamic marked by base bodily sensation. If we are to truly rank meaning and concept above phenomenological experience, then what value can such sensation have? Philosopher, Richard Shusterman, identifies a similar trend in classical and contemporary approaches to the field of aesthetics. He points to philosophers like Plato, Descartes, Leibniz, Baumgarten, Kant and Hegel who articulate a view that bodily pleasure and rational, aesthetic, contemplation are fundamentally oppositional forces. These philosophers agree that the body is irredeemably associated with humanity's base urges and, therefore, sensory pleasure serves as a distraction to higher pursuits of the mind (7-11). Shusterman proposes the theory and discipline of "somaesthetics" as an antidote to this view of aesthetic experience. This concept is based upon the Greek word "soma" which refers to the body conceived not as mere physical matter, "but the living, sentient, purposive, perceptive, intelligent body through which one perceives the world" (7). Bodily pleasure, in Shusterman's, view focuses the attention of the mind and reveals complicated relationship between physical sensation and intellection (12). The reality of Kim-Cohen's call to embrace a conceptual view of sound is far more complicated than a simple rejection of bodily sensation. Kim-Cohen, himself, acknowledges "a conceptual sonic art would necessarily engage both the non-cochlear and the cochlear, and the constituting trace of each in the other" (xxi). This view echoes Shusterman's assertion that sensation and intellection cannot be easily separated along the overly simplistic lines sketched out by Descartes' mind/body split. The only conclusion we can reach at this point in the history of art is that sound, like other sensory material, can be read for meaning if only listeners have the aural literacy to do so.

<sup>4</sup> Mladen Dolar offers a definition of the voice in *A Voice and Nothing More* stating that the voice "is *what does not contribute to making sense*. It is the material element recalcitrant to meaning, and if we speak in order to say something, then the voice is precisely that which cannot be said" (541). Here, Dolar points to the voice as a component of speech that makes words audible, but he locates linguistic meaning in the words themselves not in the voice. The voice is necessary for words to be intelligible in a speech act, but the voice exists in excess of that meaning. Certainly, words can carry meaning without reliance on the voice. Silent reading of the written word conveys meaning without the sonic properties of the voice. In this passage, we can

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begin to see more evidence of the difficulties in coming to terms with the conceptual nature of the sonic. It is a challenge to locate conceptual meaning in the sound of a voice when one thinks of the voice as philosophically distinct from the meaning of the words spoken.

Caroline Gibbs' vocal exercise from above relies on the same separation of voice from linguistic content that Dolar presents in his definition. The words "I need more waffles for my dump truck" are devoid of meaning. However, that lack of linguistic content allows us to locate a new kind of meaning in the sonic material of the voice itself. Here, sound itself is revealed to be rich in meaning supporting Kim-Cohen's view of conceptual or non-cochlear sound. Dolar, too goes on to identify the role that vocal qualities like accent, intonation, and timbre add to our experience of spoken language pointing out that many of these features are often discarded as noise which might distract listeners from interpreting the meaning of the words spoken. He also points to sociopolitical dimensions of these vocal qualities identifying them as potent markers of identity and, therefore, essential locations where class struggle (for instance) can be negotiated (544). Finally, he points to the "individuality" of a voice: the ineffable quality that allows us to identify familiar individuals by the unique quality of their voice (555).

<sup>5</sup> Nicolas Bourriaud famously popularized the notion of "relational aesthetics" in an attempt to describe "an art taking as its theoretical horizon the realm of human interactions and its social context rather than the assertion of an independent and *private* symbolic space (14). He sees a great deal of radical potential in this approach to fostering relationships within the context of a social encounter rather than representations within some pictorial space. In fact, he describes this kind of art experience as a "social interstice" borrowing a term from Karl Marx that identifies social relations that exist outside of market forces (16). For Bourriaud, the relational artwork as social interstice provides a kind of freedom to contrast the monotony and restriction of daily life by encouraging "inter-human commerce" as opposed to the kinds of capitalist exchanges and modes of communication that regularly structure our lives (16). Additionally, he describes the character of the relational work of art as "transitive" in that the art refuses to be located in any specific place or object, instead, it is found in "a forever unfinished discursiveness" (26). All of these features of the relational work of art proposed by Borriaud describe an approach to art that views the work as a conversation between equally important interlocutors rather than a hierarchical relationship between artist and audience. It also frames the work as an unfolding social situation rather than a static object or even a space to be viewed.

<sup>6</sup> Of course Borriaud's "Relational Aesthetics" is not a new theory. In fact, he overtly states that the concept has been developed in order to describe trends in the art of the 1990s (7). He even states that art has always been relational to one extent or another (15). So, what contemporary relevance can be found in a decades old theory of art for a world that seems structured more by virtual or digital relations than physical ones? David Cecchetto advocates an approach to contemporary, new media, art practices that is characterized by a focus on the "posthuman." In his book, *Humanesis: Sound and Technological Posthumanism*, Cecchetto offers a definition of the posthuman subject that revolves around the belief that "technologies today can no longer be adequately thought through the lens of 'extension' but must instead be understood as profoundly implicated in our being" (5). Here, Cecchetto sees the contemporary human as a blending of the biological organism and its technological creations. While it might be convenient to think of technologies as mere "extensions" of our sensory apparatus (an electron microscope extends my

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vision so that I can perceive things that would be imperceptible to the naked eye), in fact, these technologies have profoundly transformed the category of the human to the extent that it is difficult to draw clear lines between my body and the technologies that I rely upon to communicate with and gather information about my surroundings.

He even goes on to problematize the very notion of identity in the posthuman present stating, “questions of identity are replaced by (or at least supplemented with) questions of procedure” (7). The procedural logic of complex computer programs is now the dominant metaphor shaping the way we think of global social systems and indeed the human subject. Citing N. Catherine Hayles, Cecchetto identifies a “Regime of Computation” or (ROC) that causes contemporary humans to imagine the world and humans in it as a massive computer in much the same way that eighteenth-century Europeans used the image of the mechanisms of a clock to structure their conception of a rationally functioning world (67-69). Here Cecchetto points to a notion of the human, of human relations, and the whole world as structured by the logic of the computational algorithm. In so doing, he suggests that our identities are constructed and given meaning in our interactions with others in the vast computational network of our social encounters. Surprisingly, Bourriaud’s “relational aesthetics” perfectly dovetails with this notion of the human constructed through the encounter. He states “the essence of humankind is purely trans-individual, made up of bonds that link individuals together in social forms which are invariably historical” (18). Although he is not thinking in terms of the relationality found between functions in a computer program as might be the case in Cecchetto’s view, Bourriaud is advocating a notion of the human subject that is intimately and inextricably bound up in encounters with the other. My work represents a merging of Bourriaud’s “Relational Aesthetics” and Cecchetto’s posthuman “Regime of Computation.”

<sup>7</sup> In Johnathan Sterne’s “Out with the Trash: On the Future of New Media,” he asserts that advanced civilizations tend to hide their trash in an attempt to maintain the fiction of a properly functioning society (Sterne 27). Doing so, allows citizens to embrace new modes of communication without critically addressing the ways in which these technologies shape the content of communication.



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## Appendix 1: Documentation Images

All documentation images are from *Asynchronous voice and body* \1 primary stress  $\acute{e}\ \acute{e}f\ \acute{v}^{\wedge}$  : voiceless @ 145-165 hz.  $\acute{e}\ \acute{e}f\ \acute{v}^{\wedge}$  -- PLOSIVE! The photographs are copyright Brian Hawkins, 2016 and were taken during the performances between April 3<sup>rd</sup> and April 7<sup>th</sup>, 2016.



1. Performance shot, reading and speaking from the desk in the center of the gallery space.



2. Performance shot, marking with chalk in southeast performance area of gallery.



3. Performance shot, measuring the chalk line in southeast performance area of gallery.



4. Installation view, tape markings and chalk lines in southeast performance area of gallery.



5. Performance shot, measuring chalk lines in southeast performance area of gallery.



6. Performance shot, calculating from measurements in southeast performance area of gallery.



7. Installation view, chair in southeast performance area of gallery.



8. Installation view of center and west performance area from the east side of the gallery.



9. Performance shot, viewer interaction in west performance area of gallery.





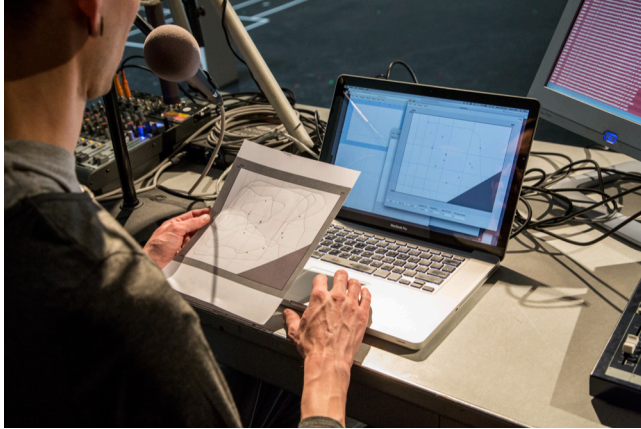
10. Performance shot, selecting instruction cards in west performance area in gallery.



11. Installation view of west performance area of gallery.



12. Installation view of west performance area of gallery.



13. Performance shot, transcribing to the vowel editor.

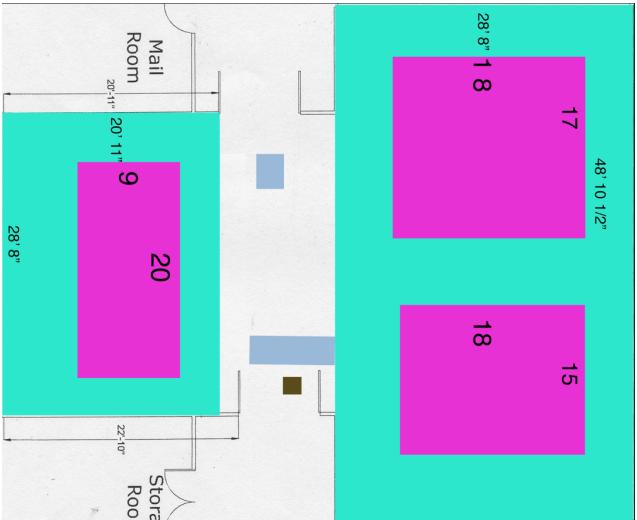
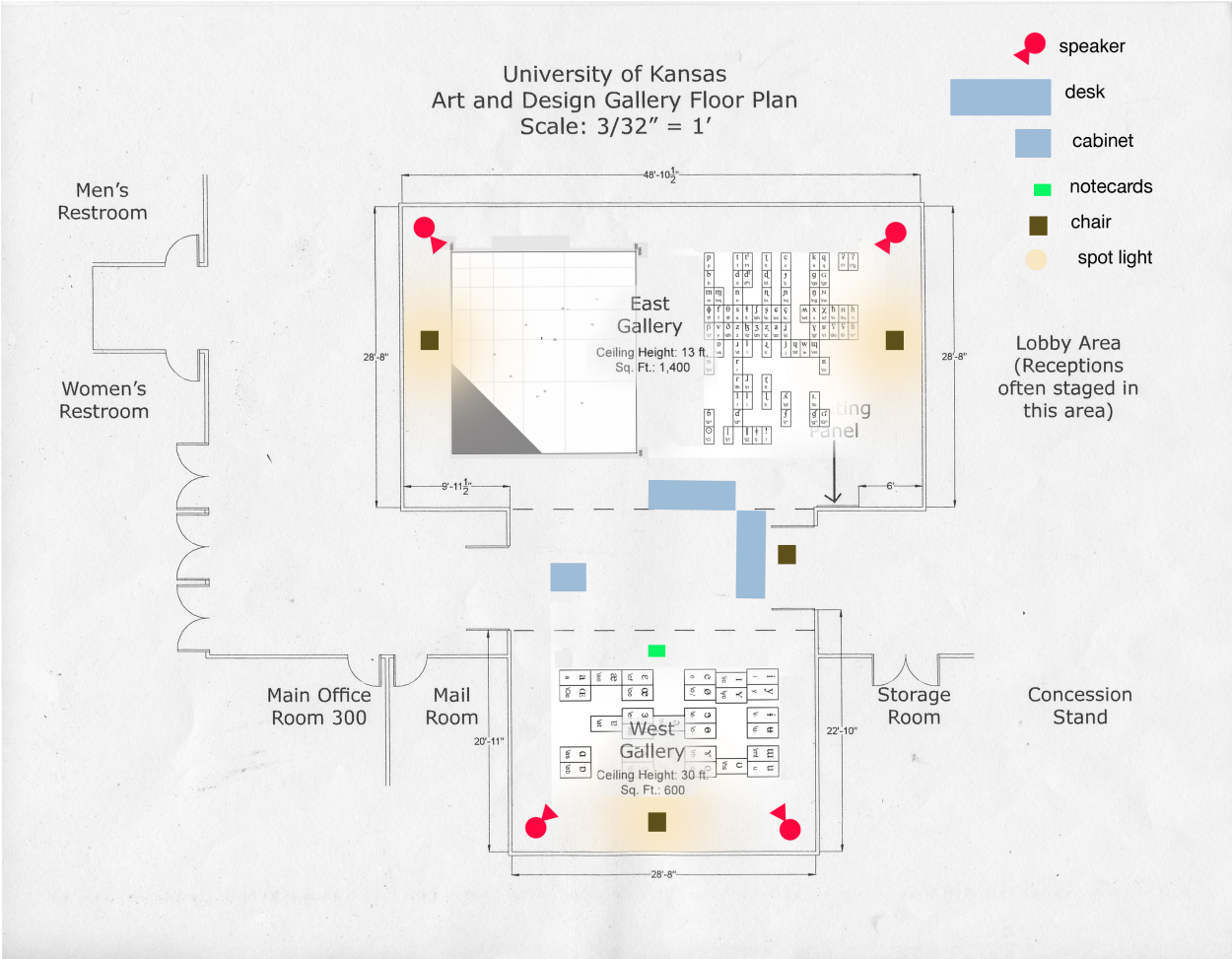


14. Performance shot, reading and speaking in the central performance area.



15. Performance shot, reading and speaking in the central performance space and making eye contact with a distant viewer.

Appendix 2: Floor plans

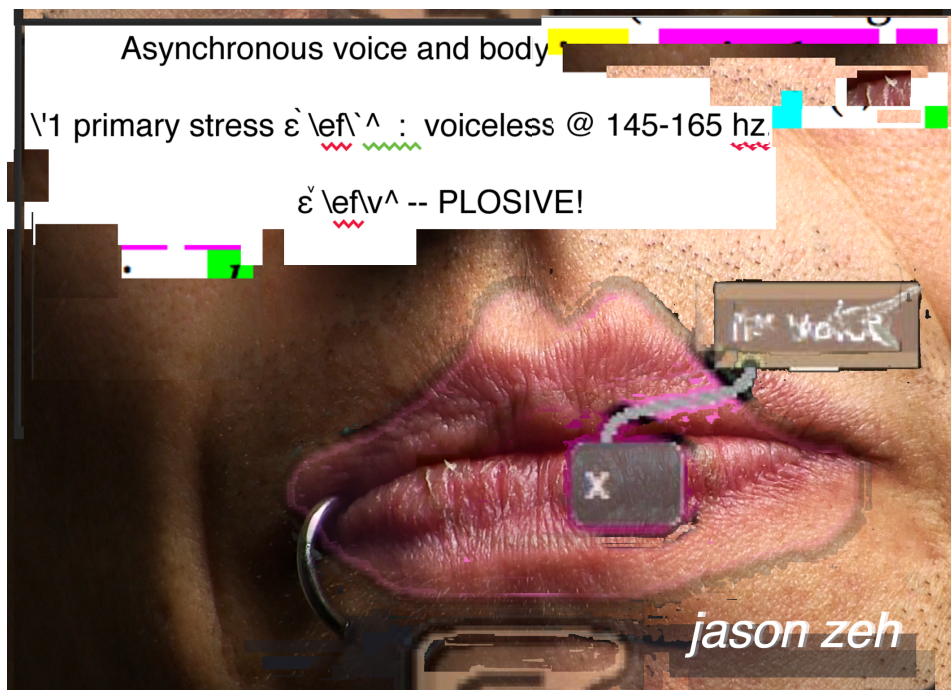




## Appendix 3: Show Card



### 1. Back Image



### 2. Front Image

## **Appendix 4: Performance Journal**

The following is the journal that I kept during the week of the performances from April 3-7, 2016. It contains my thoughts and reflections from the events of the day.

### **Day One**

I was really anxious on the first day because I was really worried about how things were going to go. I was concerned that technology wouldn't work. I was concerned that I would not know how to interpret the instructions I have prepared for myself. I was concerned that I would not know how to interpret the measurements that I was taking. I think the anxiety I was feeling was important. I think I legitimately wanted to feel like I had no idea what was going to happen and how it was going to work out. So, that was good.

At first, I was really surprised that people were afraid to enter the space. Even friends in the art department seemed afraid to enter or didn't know if it was okay for them to be in there. It was odd.

The other surprising thing that I noticed was that people seemed to be really thoughtful about trying to figure out how exactly their movements affected what I was doing. I was really interested in that because I think that many people in real life seem unaware of the ways that their interactions with others shape the behaviors of those with whom they interact. It was really interesting to see people's thought processes as they tried to see what kinds of behaviors would have an effect. Some people stayed intensely still when I placed tape by their feet. Others seemed to intentionally move their feet suddenly to see if I would stop the clock. They were curious and trying to figure things out.

Another interesting thing is that people were rummaging through the cards on the pedestal and trying to match the symbols up to those on the floor. Some people even took cards from the stack. I didn't expect people to do that. It is incredibly surprising that they seem more comfortable interacting with the words on those cards than they do walking on the charts on the floor. I wonder if the words key them in to a more detached mental or intellectual engagement with the material that feels safer than the more physical, bodily engagement with the space that I had envisioned. Apparently, someone was even admonished by another viewer for stepping on a chalk line.

I was also quite surprised by the difficulty of interpreting the cards and determining how to use those to direct my speech. I think I need to print off more of the ones that say something about breathiness and tone, friction, rounding, tongue and teeth, etc. ones that have a more clear interpretation for me. It is a really interesting and conceptually rich detail of the experience. I know that the symbols on the cards are supposed to merely describe the kinds of sounds our voices make when speaking. But it is a surprising reversal to be in a position where those ostensibly descriptive symbols are actually dictating modes of speech.

The outcomes of my voice recordings have been surprising and really exciting. There was one in particular where I spoke in a low tone or a falling tone, but the pitch tier transformation made it

seem really sing-songy. It was pretty incredible to hear the transformation. I am excited by the mismatches that occur between the way I modify my speech while speaking and the way the software transforms it.

Another exciting and unexpected outcome of the experience so far has been just how weird it is to have this mysterious and rigorous system of rules as the only mode of interaction with the audience. It can't really even be described as an interaction. It is more of an impenetrable mediating process than an interaction. It is like a wall or barrier that allows small amounts of information to leak through from one side to the other. I think it does constitute a social encounter because there is 2 way flow of information. But the information is slowed and filtered by the system of rules that governs the encounter. I am not really making eye contact. I am not even really looking at people in any meaningful way. I am just looking at the information that they are providing to me in order to shape my speech.

The final thing that I was surprised by was the unfamiliarity I had with the process and what was going on. This speaks to a recent conversation about muscle memory in performing adeptly with a Max patch you have created. When I perform music, I am really accustomed to acting decisively. Even though I might not know exactly what the outcome of a gesture might be, I am confident in the gesture. I am completely not confident in any of the gestures that I am performing in this piece. As the day went on, the space began to become more and more familiar to me and the actions I was performing began to feel more and more natural. I wonder, how it will feel by the end of the week.

By the end of the day, I began to fully figure out how best to do the math in order to produce meaningful outcomes. The same is kind of true of the note cards. It was still a struggle to get some meaning out of them. I think I will get better at that with time.

## **Day 2**

Many of the phonetic instruction cards are really hard to interpret. Even when there are a lot of people in the space, I can't work fast enough to get to the good ones more regularly. I am going to print some more and stack the deck. I already placed the good ones in the region of the stack that I am most likely to access, but I am going to print some new ones that have commands that are more interesting and conceptually relevant. I need to let go and take more liberties. I added more cards with better instructions.

Things that I have noticed today:

- People seem a bit scared when I come at them with tape. I need to be a bit more welcoming.
- It is hard to stay busy when no one is there.
- I have taken to reading the screen when no one is in the space. There are a lot of great phrases presenting themselves that I don't get to say. It is really disappointing.

So, two things.

1. I think I am ready to start looking people in the eyes when I speak. I think that will be important to set up this situation in which I am completely detached when collecting

data, but completely vulnerable when speaking. As I was walking in to campus today, I was really getting nervous about it: wondering what will happen if I start crying when I speak. Let's see what happens.

2. Saying the phrase "7, 8, intensity" was really intense for me yesterday. I am not sure why. I had to say it in this breathy voice and the computer made it come out pitched up with a sing-songy pitch tier. The phrase has been running through my head all night and into the morning of day 3. This is what convinced me that I need to make eye contact when speaking. There is something very vulnerable and personal and emotionally powerful for me about saying that phrase in that breathy voice. I think this might be the "in" to allow people access to me.
3. Actually. One more thing. I am noticing that a lot of people are spending a lot of time trying to make sense of the visual elements. They are trying to figure out the rules. But I am not sure they are looking for information in the sound with as much attentiveness. For me, the visual elements give a clear impression that there is a rigorous and impenetrable system of rules governing the social encounter, but the rest of the information is in the sound. I am not sure this is an obstacle I can overcome in this piece, in this space.

### **Day 3**

This was the best day so far. I decided to start trying to look people in the eyes when speaking. It is pretty intense and difficult. I look forward to seeing how that works out tomorrow.

There were some instances today when I was in a standoff with someone who wouldn't move. I decided to try to take advantage of the opportunity to mark and measure someone else in the chalk chart while still keeping track of the stopwatch and the person standing still on the other chart. So, I began trying to experiment with doing multiple processes at once. This is also becoming a possibility when the space is especially busy. I think I am getting comfortable enough with what I am doing that I am able to try to multitask when the space is busy. I think it produces a more interesting experience for me and for others. It is exciting to juggle the actions simultaneously. I think that it is exciting for the viewers because there is this real and palpable risk of failure, like I might lose my balance and fall over when I am trying to do too much at once.

I also think that I am getting more comfortable taking measurements and am figuring out ways to make the process more effective and efficient. This is especially important as it becomes increasingly impossible to tell which chalk line I am working on. I wish I had my chapstick.

### **Day 4**

When I came in today, nothing was sending any audio. I was panicking right up to noon because I still had to go get dressed. I tried everything that I could think of to get things working but nothing worked at all. I could not, for the life of me, figure out what was going wrong. Everything looked good. Everything looked like it should be sending audio, but it wasn't.

Finally, I decided to try to restart the computer and that worked. At least I know now that that is something that Max might do from time to time. Ugh! Terror!

I made some really good eye contact with some people today. It was hard at first but got easier as the day went on. I really want to hear what people were feeling when that happened. One really interesting aspect of that experience is that I have started thinking of the phrases that I said to particular people as somehow *being* those people. For instance, Leigh said that her favorite phrase was “keeps me fit and healthy. Trill” My response was “oh yeah that was Renee.” Or, the other day, Sydney pointed out that she heard the word “waffles” and “dumptruck” to which I responded “that was Ruben.” It is starting to seem like I am surrounded by these people when they aren’t there. It is like they have left an imprint on the words and phrases and something of them and the encounter we had lingers. It is pretty odd.

I am finding it really difficult to remember the origins of some of the text that plays back. Like, where did the words originally come from. For instance, the “keeps me fit and healthy” phrase: I could not remember where that one came from until just now. That was a phrase about my Dad’s practice of going to swim class. With stuff like that, the phrases are starting to become a combination of Renee and my Dad.

The other thing that I began thinking about while the space was relatively empty was that you can see concentrations of markings on the floor in particular places. For instance, around the perimeter of the stopwatch chart, or clustered around the pedestal. It is an interesting way to start charting trends in people’s behaviors when entering the space.

## **Day 5**

I read some terrible transphobic nonsense from someone on Facebook just before coming in to perform today. I am interested to see how that affects things. I felt that awful, jittery, anger that only comes from reading internet comments. It is still with me right now. Terrible.

It is really strange starting tonight when I have been just getting ready to quit.

A friend rode all the way out from Chicago on his scooter. What a lovely gesture. I can’t believe it. He also gave me a really thoughtful gift. What a lovely human.

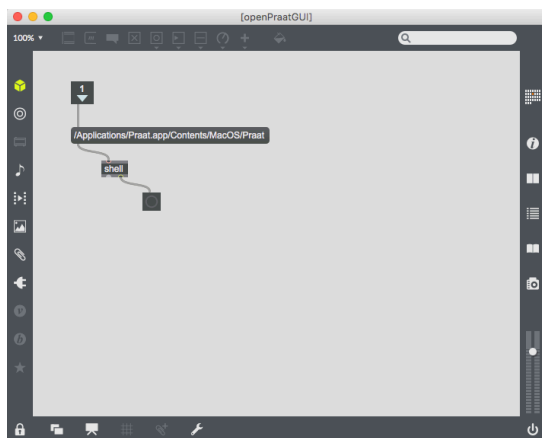
## **Day 6 (tear Down)**

I had breakfast with my friend from Chicago before he had to drive back to Chicago. It was a really nice moment. He got teary eyed in a way that I never imagined when I told him how thankful I was that he came and how thankful Kelly and I were that none of our other friends seem to have read or commented on her book. We talked a bit about how, no matter how terrible the world is, this is real life. Traveling around to spend time with people we care about and playing music is what real life is. It was super nice for us to have that moment to connect.

When I went to campus, I was thinking about all of the intense moments I had with people throughout the week and literally ran into all of them at once in the stairwell. I was able to open

up to them about how powerful that experience was and to thank them for being there. I started crying and they gave me a group hug. They all agreed that it was powerful. I think I succeeded. One thing I said to Ruben was that I was worried that the piece was too weird for people to be touched emotionally. It wasn't and some of them were.





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Script "/Users/jasonzeh/Documents/ThesisPerformanceFiles/PraatScripts/PTscripts/..."
File Edit Search Convert Font Run Help
Read from file: "/Users/jasonzeh/Documents/ThesisPerformanceFiles/OverwriteFiles/M
selectObject: 1
To Manipulation: 0.01, 20, 2000
Read from file: "/Users/jasonzeh/Documents/ThesisPerformanceFiles/PitchTierAudioFi
selectObject: 2
plusObject: 3
Replace pitch tier
selectObject: 1
plusObject: 2
Replace original sound
selectObject: 2
Get resynthesis (overlap-add)
selectObject: 4
Save as AIFF file: "/Users/jasonzeh/Documents/ThesisPerformanceFiles/OverwriteFile:
#Play
#enable via hashtag for quick playback outside of max
removeObject: 1
removeObject: 2
removeObject: 3
removeObject: 4

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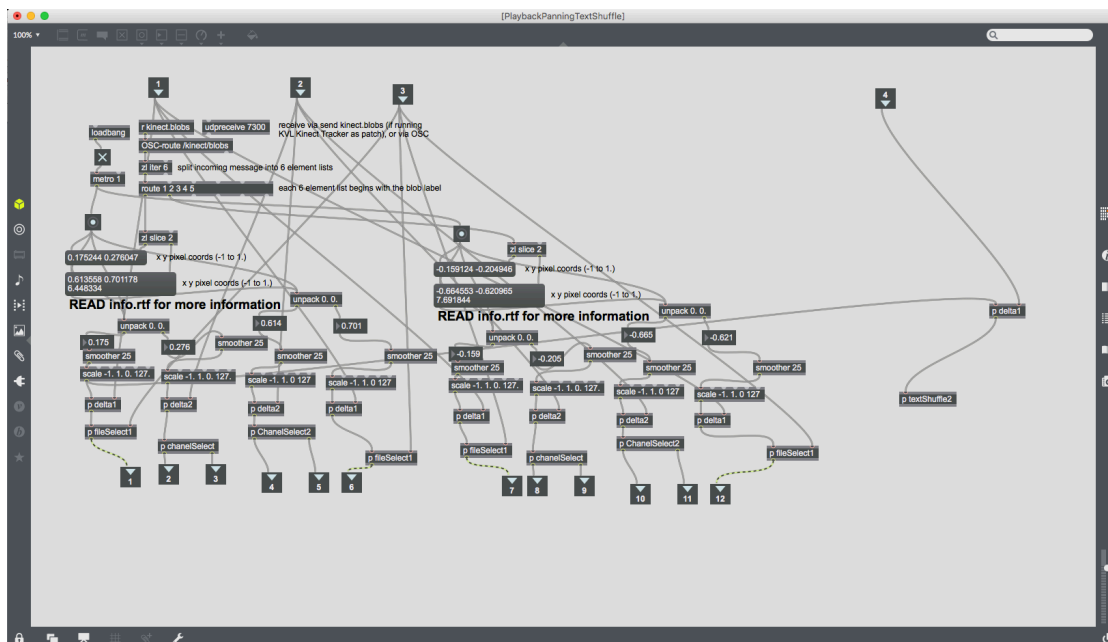
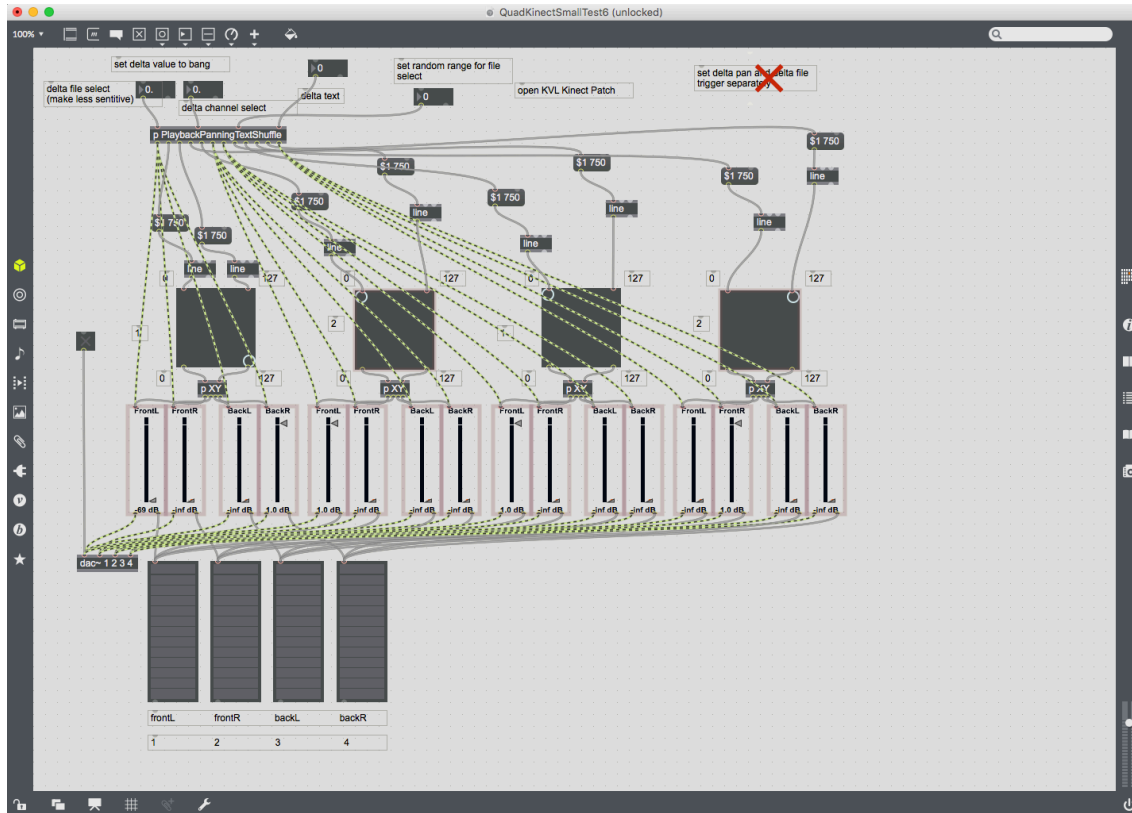
Script "/Users/jasonzeh/Documents/ThesisPerformanceFiles/PraatScripts/VEScripts/VEfilterPitch"
File Edit Search Convert Font Run Help
Read from file: "/Users/jasonzeh/Documents/ThesisPerformanceFiles/OverwriteFiles/VowelEditor.aif"
Read from file: "/Users/jasonzeh/Documents/ThesisPerformanceFiles/OverwriteFiles/Voice.aif"
Convert to mono
selectObject: 3
To Formant (burg)... 0 5 5000 0.025 50
selectObject: 3
To Manipulation... 0.01 75 600
selectObject: 1
plusObject: 4
Filter
selectObject: 6
To Manipulation... 0.01 75 600
selectObject: 5
Extract pitch tier
selectObject: 8
plusObject: 7
Replace pitch tier
selectObject: 7
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#selectObject: 7
Get resynthesis (overlap-add)
selectObject: 7
Get resynthesis (LPC)
selectObject: 9
#Play
Save as AIFF file: "/Users/jasonzeh/Documents/ThesisPerformanceFiles/OverwriteFiles/TransformVowelEditorOA.aif"
selectObject: 10
#Play
Save as AIFF file: "/Users/jasonzeh/Documents/ThesisPerformanceFiles/OverwriteFiles/TransformVowelEditorLPCTest.aif"
removeObject: 1
removeObject: 2
removeObject: 3
removeObject: 4
removeObject: 5
removeObject: 6
removeObject: 7
removeObject: 8
removeObject: 9
removeObject: 10
#this script takes a voweleditor sound file
#it then opens an audio file
#finally, it extracts the pitch tier and filter from that file, applies it to the vowel editor
#and saves 2 versions of that synthesis.

```



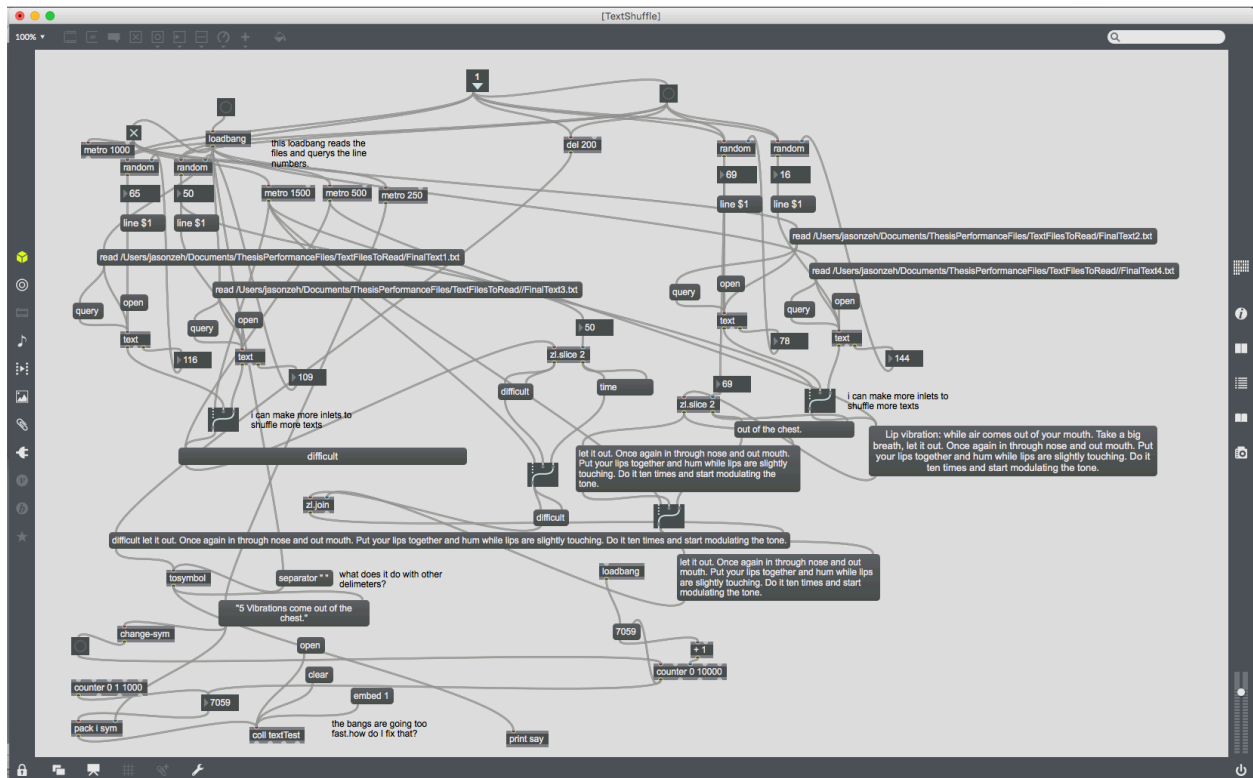
## Appendix 5B

The following images are screenshots of the Max patch and subpatch that use the motion and depth sensor data from the Xbox Kinect to select audio files for playback and to play them in one of four speakers.



## Appendix 5C

The following image is the portion of the Max patch that uses the motion and depth sensor data from the Xbox Kinect to shuffle elements of several texts and to present them to be spoken.



## Appendix 6: Generated Text

The following is a selection of the first one hundred pieces of text that the Max patch generated during the performance and presented to be spoken.

- 1, "Quite selfishly shaped p? pap";
- 2, "unnecessary Speak successfully";
- 3, "how are you Vibrations come out of your nasal cavity";
- 4, "I am opening a rhotacized vowel";
- 5, "I work on the “s”s";
- 6, "that hollows itself. Upward inflections.";
- 7, "where to start to short";
- 8, "the whole package Speak with a chest voice";
- 9, "We were talking about syllabic consonant";
- 10, "I was called a Put your hand on your waistline and breathe from your diaphragm.";
- 11, "that it is easy to do start in lower register and count up from 1 -10 while tightening stomach muscles and vocal cords. Use fingers to guide voice up. Like hunching shoulders in. Throat in tongue";
- 12, "Discovery and Ambulance alarm exercise. Ooooooh-oooooh-oooooh: like an alarm of an ambulance.";
- 13, "Immersion in the dumptruck tack below";
- 18, "or show dog enunciate";
- 19, "Honey is Intone upward on initial syllable.";
- 20, "start at a 1 Speak authentically";
- 21, "the whole package speak with vulnerability";
- 22, "I share a secret. Bilabial";
- 23, "from a mugand eat bowls of broccoli stems. nasal release";
- 24, "a ma'am Larynx lowering";
- 25, "Peachy keen nasalized";
- 26, "how are you work on the “s”s";
- 27, "I went to florida centralized";
- 28, "went up the hill to “retraction of the mouth corners (smiling)”";
- 29, "Speak safely speak with Aggressiveness";
- 30, "is, 'I can't find more expressive";
- 31, "I Unacceptable vocal quality";
- 32, "that hollows itself. Intonation: “That initial rise is very hard to produce,";
- 33, "This is an example of Best possible voice quality with the least strain.";
- 34, "The best thing I ever hear, Strain";
- 35, "A secret is shared nonsyllabic";
- 36, "about my lawnmower. combining inverted bridge below";
- 37, "sail-boat Strain";
- 38, "Speak safely start in lower register and count up from 1 -10 while tightening stomach muscles and vocal cords. Use fingers to guide voice up. Like hunching shoulders in. Throat in tongue";
- 39, "4 “but too much of that makes clients sound like Valley Girls.”";

40, "I was called a Excessively breathy";  
 41, "Musicians Listen Acceptable vocal quality";  
 42, "unnecessary “retraction of the mouth corners (smiling)”";  
 43, "is the way that I carry myself. Implosive";  
 44, "My wife or single segment";  
 45, "Musicians Listen More melodious voice";  
 46, "perception could be put Long pauses";  
 47, "Honey soothes speak with friendliness";  
 48, "perception could be put speak with vulnerability";  
 49, "Manicotti simultaneous articulation";  
 50, "pitcher I simultaneous articulation";  
 51, "I am a thing that speak with Aggressiveness";  
 52, "4 speak with the lips";  
 53, "Speak from the chest Excessively tense";  
 54, "to understand history Vibrations come out of your nasal cavity";  
 55, "that assumes my combining grave accent";  
 56, "I was called a speak with assertiveness";  
 57, "We were talking about Rounded post-alveolar";  
 58, "No se preocupe Ambulance alarm exercise. Ooooooh-oooooh-oooooh: like an alarm of an ambulance.";  
 59, "Honey soothes go into head voice and lower from there";  
 60, "he shakes my hands and squeezes. or single segment";  
 61, "Decent easy to speak angrily";  
 62, "an attempt to suppress Ambulance alarm exercise. Ooooooh-oooooh-oooooh: like an alarm of an ambulance.";  
 63, "because I am a smoker. lowered vowel";  
 64, "A wine cooler in if spaces don't mean";  
 65, "It's a surprise Speak acceptably";  
 66, "“Rain-bow Upward inflections.”";  
 67, "my membership in the club combining right";  
 68, "Speak safely Intensity";  
 69, "1 2 3 keep it at Intensity";  
 70, "leads to accidental accomplishments Approximant";  
 71, "1 2 3 4 5 6 7 keep it at a 7 for a day Emulate the voice of the speaker.";  
 72, "for my dumptruck” Jitter and shimmer";  
 73, "Immersion in a Intone upward on initial syllable.";  
 74, "Honey is Jitter and shimmer";  
 75, "heart laminal";  
 76, "Give(s) the impression that Intone upward on initial syllable.";  
 77, "to allow you rhotacized vowel";  
 78, "4 Vibrations come out of the chest.";  
 79, "Hee-ya-oo go into head voice and lower from there";  
 80, "pot-tery” Rhythm.";  
 81, "A whole different Intone downward on first syllable.";  
 82, "and fell on a flame palatalization";  
 83, "I love you. Retroflex";

- 84, "Twinkle twinkle little star Speak successfully";
- 85, "we love each other. simultaneous articulation";
- 86, "Honey is Speak with a head voice";
- 87, "1 2 3 4 5 6 7 8 keep it at a 8 for a day Speak safely";
- 88, "when the waves and the Emulate the voice of the speaker.";
- 89, "Simplify it go into head voice and lower from there";
- 90, "to understand history speak with politeness";
- 91, "when the waves and the Breathiness";
- 92, "What can be known? nasalized";
- 93, "fo fum." Light and clear vocal quality";
- 94, "Speak perfectly it goes in and out";
- 95, "or show dog continuous tone";
- 96, "of what can happen when Vocal variability";
- 97, "Show horse or Intensity";
- 98, "put upon you go into head voice and lower from there";
- 99, "when the waves and the continuous tone";
- 100, "when the waves and the speak with assertiveness";

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